

IR-1698 (2-2027)

LATERAL SUPERJUNCTION SEMICONDUCTOR DEVICE

ABSTRACT OF THE DISCLOSURE

A lateral conduction superjunction semiconductor device has a plurality of spaced vertical trenches in a junction receiving layer of P⁻ silicon. An N⁻ diffusion lines the walls of the trench and the concentration and thickness of the N⁻ diffusion and P⁻ mesas are arranged to deplete fully in reverse blocking operation. A MOSgate structure is connected at one end of the trenches and a drain is connected at its other end. An N⁻ further layer or an insulation oxide layer may be interposed between a P⁻ substrate and the P⁻ junction receiving layer.

TOP SECRET